

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

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REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS N/A	
2a. SECURITY CLASSIFICATION AUTHORITY N/A		3. DISTRIBUTION/AVAILABILITY OF REPORT Unlimited	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A		5. MONITORING ORGANIZATION REPORT NUMBER(S) N/A	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)			
5a. NAME OF PERFORMING ORGANIZATION Adaptive Solutions, Inc.	6a. OFFICE SYMBOL (If applicable) N/A	7a. NAME OF MONITORING ORGANIZATION Office of Naval Research	
5c. ADDRESS (City, State, and ZIP Code) 1400 NW Compton Drive, Suite 340 Beaverton, OR 97006		7b. ADDRESS (City, State, and ZIP Code) Code 251A GBP Ballston Tower One, 800 North Quincy Street Arlington, VA 22217-5660	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION ARPA	8b. OFFICE SYMBOL (If applicable) N/A	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER Contract # N00014-93-C-0234	
5c. ADDRESS (City, State, and ZIP Code) 3701 North Fairfax Drive Arlington, VA 22203-1714		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO. N/A	PROJECT NO. N/A
		TASK NO. N/A	WORK UNIT ACCESSION NO. N/A
11. TITLE (Include Security Classification) High Performance Hardware and Software for Pattern Recognition and Image Processing			
PERSONAL AUTHOR(S) Wendell A. Henry			
13a. TYPE OF REPORT FINAL TECHNICAL REPORT	13b. TIME COVERED FROM 960901 TO 961206	14. DATE OF REPORT (Year, Month, Day) 961227	15. PAGE COUNT 37
16. SUPPLEMENTARY NOTATION			

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) Pattern Recognition Image Processing
FIELD	GROUP	SUB-GROUP	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

All objectives of the contract have been achieved. During Phase 1 of the project Adaptive solutions designed, implemented, and tested a PC/AT form-factor board which has sockets for up to 4 CNAPS-1064 chips. This gives it a configuration option of 64 to 256 processing nodes (PN). The 256 PN configuration provides the computational power of 5.12 Billion Multiply-Accumulates per second.

During Phase 2 of the project the CNAPS Software Development Kit was ported from the CNAPS/VME board running in a SunOS environment to the CNAPS/PC board running in the Windows 3.1x environment. Later it was ported to the Windows/NT environment when NT became available.

(CONTINUED ON REVERSE)

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
23. NAME OF RESPONSIBLE INDIVIDUAL Wendell Henry		22a. TELEPHONE (Include Area Code) (503) 690-1236	22b. OFFICE SYMBOL

BLOCK 19 CONTINUED

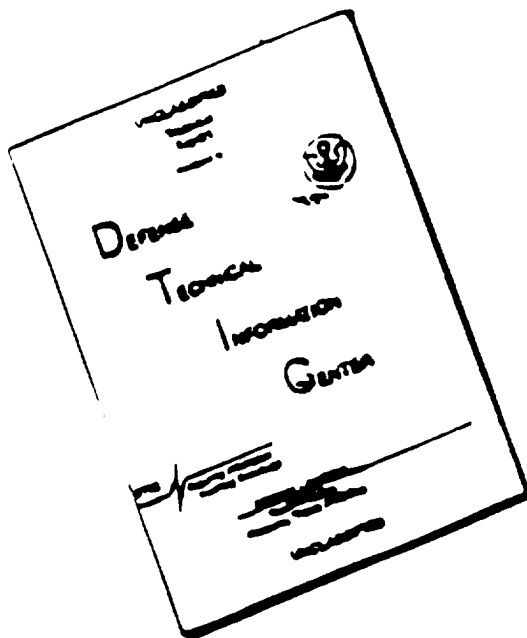
During Phase 3 of the project a C-callable function library which includes basic matrix math functions, image processing algorithms, and neural network functions was created. This function library is callable from within C and C++ application programs using the CNAPS/PC board in the Windows/NT environment.

During Phase 3 of the project Adaptive also completed the tasks related to the exercised project option. Portions of the next-generation CNAPS chip (X2) were designed and simulated. Schematics of the various CNAPS chip functional areas were completed.

The design of the X2 chip was accomplished while maintaining full code compatibility with the previous generation of the chip. Therefore, no changes to the loader, CNAPS-C compiler, or the CPL assembler were required to support the X2. Previous versions of the compiler and assembler are to be used with the new X2 chip. As a result of the X2's code compatibility the three line item deliverables 5AG (CNAPS assembler and loader), 5AH (CNAPS-C compiler), and 5AI (Design document for CNAPS-C optimizations enhancements) are satisfied by deliveries of the CNAPS software development environment.

At the time of this report, the project has been authorized to spend \$1,997,949.00 for the Phase 1, 2, and 3 tasks plus the one optional task. The project has accumulated expenses of approximately \$1,997,949.00. No further work on the project will be required.

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Final Technical Report

December 27, 1996

ARPA Order No.:

A407

Contractor:

Adaptive Solutions, Inc.

1400 NW Compton Drive, Suite 340

Beaverton, OR 97006

Contract No.:

N00014-93-C-0234

Contract Amount:

\$1,997,949.00

Effective Date of Contract:

November 8, 1993

Expiration Date of Contract:

December 7, 1996

Principal Investigator:

Wendell A. Henry

Telephone Number:

(503) 690-1236

Title of Project:

High Performance Hardware and Software for Pattern Recognition and Image Processing

Title of Work:

Final Technical Report

Reporting Period:

September 1, 1996 to December 7, 1996

Disclaimer

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Advanced Research Projects Agency of the U. S. Government.

19970106 077

Project Summary:

This contract helped fund the design, development, and debug of hardware and software modules to exploit the processing capabilities of the CNAPS architecture within a PC platform.

The contract funding was directed towards three specific objectives which were organized into different phases of the project. An optional objective to the contract was exercised and funded and was completed concurrent with the original Phase 3 objectives. The following outlines the primary objective of each contract phase plus the objective of the contract option.

Phase 1 Objective:

Build a PC/AT form-factor plug-in board using CNAPS 1064 chips which implement the CNAPS architecture.

Phase 2 Objective:

Port the Unix-based CNAPS Software Development Kit to the Phase 1 CNAPS/PC board and the Microsoft Windows environment.

Phase 3 Objective:

Design and implement a C-callable function library which includes image processing and neural network functions, and executes on the Phase 1 CNAPS/PC board.

Option 1 Objective:

Design portions of the next-generation CNAPS chip (X2).

All objectives of the contract have been achieved. During Phase 1 of the project Adaptive solutions designed, implemented, and tested a PC/AT form-factor board which has sockets for up to 4 CNAPS-1064 chips. This gives it a configuration option of 64 to 256 processing nodes (PN). The 256 PN configuration provides the computational power of 5.12 Billion Multiply-Accumulates per second.

During Phase 2 of the project the CNAPS Software Development Kit was ported from the CNAPS/VME board running in a SunOS environment to the CNAPS/PC board running in the Windows 3.1x environment. Later it was ported to the Windows/NT environment when NT became available.

During Phase 3 of the project a C-callable function library which includes basic matrix math functions, image processing algorithms, and neural network functions was created. This function library is callable from within C and C++ application programs using the CNAPS/PC board in the Windows/NT environment.

During Phase 3 of the project Adaptive also completed the tasks related to the exercised project option. Portions of the next-generation CNAPS chip (X2) were designed and simulated. Schematics of the various CNAPS chip functional areas were completed.

The design of the X2 chip was accomplished while maintaining full code compatibility with the previous generation of the chip. Therefore, no changes to the loader, CNAPS-C compiler, or the CPL assembler were required to support the X2. Previous versions of the compiler and

assembler are to be used with the new X2 chip. As a result of the X2's code compatibility the three line item deliverables 5AG (CNAPS assembler and loader), 5AH (CNAPS-C compiler), and 5AI (Design document for CNAPS-C optimizations enhancements) are satisfied by deliveries of the CNAPS software development environment.

At the time of this report, the project has been authorized to spend \$1,997,949.00 for the Phase 1, 2, and 3 tasks plus the one optional task. The project has accumulated expenses of approximately \$1,997,949.00. No further work on the project will be required.

Deliverables:

During the course of this project Adaptive Solutions has delivered specific contracted line items as they have been completed. Table 1, "Initial Delivery of Contracted Line Items," on page 4 presents a history of these deliveries.


In several cases Adaptive has shipped updated versions of the hardware and software as enhancements and bug fixes have been developed and tested. Table 2, "Delivery of Updated Contracted Line Items," on page 7 presents a history of these deliveries.

Appendix A of this report includes copies of Adaptive's shipping notices for each of the deliveries.

Fiscal Status:

Amount currently provided on contract:	\$1,997,949.00
Expenditures and commitments to date:	1,997,949.00
Funds required to complete work:	\$0.00

Authorized Phase funding:	\$1,997,949.00
Expenditures and commitments to date:	1,997,949.00
Authorized Phase funds remaining:	\$0.00


Wendell A. Henry

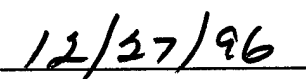

Date

Table 1: Initial Delivery of Contracted Line Items

Line Item	Line Item Description	Line Item Deliveries		
		Date	Qty.	Destination Address
1AA	10 Working copies of CNAPS/PC board	8/31/94	10	Dr. Barbara Yoon ARPA/MTO 3701 N. Fairfax Dr. Arlington, VA 22203-1714
1AB	10 User Licenses for PC based CNAPS-C software development environment	8/31/94	10	Dr. Barbara Yoon ARPA/MTO 3701 N. Fairfax Dr. Arlington, VA 22203-1714
1AC	Maintenance and Support for 1 year with each CNAPS-C license and each CNAPS/PC board	8/31/94	10	Dr. Barbara Yoon ARPA/MTO 3701 N. Fairfax Dr. Arlington, VA 22203-1714
1AD	10 User Licenses for PC based BuildNet software development environment	10/10/95	7	Mr. Kevin Kittka PRC Incorporated 4301N. Fairfax Dr., Suite 700 Arlington, VA 22203-1627
			1	Mr. Morgan Grover Defense Group Inc. 429 Santa Monica Blvd., Suite 420 Santa Monica, CA 90401
			1	Mr. David Hess David Taylor Model Basin, Code 54 Carderock Division, NSWC Bethesda, MD 20084-5000
			1	Mr. Jeff DeHart Army Research Lab. 2800 Powder Mill Rd. Attn: AMSRL-SS-IC Adelphi, MD 20783-1197

Table 1: Initial Delivery of Contracted Line Items

Line Item	Line Item Description	Line Item Deliveries		
		Date	Qty.	Destination Address
1AE	10 User Licenses for PC based CNAPS Software development environment	6/2/95	7	Mr. Kevin Kittka PRC Incorporated 4301N. Fairfax Dr., Suite 700 Arlington, VA 22203-1627
		4/28/95	1	Mr. Morgan Grover Defense Group Inc. 429 Santa Monica Blvd., Suite 420 Santa Monica, CA 90401
		4/28/95	1	Mr. David Hess David Taylor Model Basin, Code 54 Carderock Division, NSWC Bethesda, MD 20084-5000
		4/28/95	1	Mr. Jeff DeHart Army Research Lab. 2800 Powder Mill Rd. Attn: AMSRL-SS-IC Adelphi, MD 20783-1197
1AF	Support for 1 year for each PC based Buildnet license and each CNAPS software development environment license	10/10/95	7	Mr. Kevin Kittka PRC Incorporated 4301N. Fairfax Dr., Suite 700 Arlington, VA 22203-1627
		10/10/95	1	Mr. Morgan Grover Defense Group Inc. 429 Santa Monica Blvd., Suite 420 Santa Monica, CA 90401
		10/10/95	1	Mr. David Hess David Taylor Model Basin, Code 54 Carderock Division, NSWC Bethesda, MD 20084-5000
		10/10/95	1	Mr. Jeff DeHart Army Research Lab. 2800 Powder Mill Rd. Attn: AMSRL-SS-IC Adelphi, MD 20783-1197

Table 1: Initial Delivery of Contracted Line Items

Line Item	Line Item Description	Line Item Deliveries		
		Date	Qty.	Destination Address
0002	Data Item A003, Final Technical Report	12/30/96	3	Dr. Clifford G. Lau Office of Naval Research Ballston Centre Tower One 800 North Quincy St. Arlington, VA 22217-5660 Attn: ONR 314 Ref: Contract N00014-93-C-0234
	Data Item A004, Source code for C functions	12/30/96	10	
	Data Item A005, Documentation for C functions	12/30/96	10	
5AA	Phase Locked Loop schematic set and stream tape of final layout.	12/30/96	1	Dr. Barbara Yoon ARPA/MTO 3701 N. Fairfax Dr. Arlington, VA 22203-1714 Ref: Contract N00014-93-C-0234
5AB	Mini-Sequencer logic - preliminary schematic set	12/30/96	1	
5AC	Input/Output schematic set and stream tape of final layout	12/30/96	1	
5AD	Power Transistor schematic set and stream tape of final layout	12/30/96	1	
5AE	Logic Unit schematic set and stream tape of final layout	12/30/96	1	
5AF	PN SRAM schematic set and stream tape of final layout	12/30/96	1	
5AG	Next generation CNAPS Assembler and Loader - Letter of Explanation	12/30/96	1	
5AH	Port of CNAPS-C Compiler back-end - Letter of Explanation	12/30/96	1	
5AI	Design Document of Next Generation CNAPS-C optimization enhancements - Letter of Explanation	12/30/96	1	

Table 1: Initial Delivery of Contracted Line Items

Line Item	Line Item Description	Line Item Deliveries		
		Date	Qty.	Destination Address
0006	Data Item B003, Final Technical Report	12/30/96	3	Dr. Clifford G. Lau Office of Naval Research Ballston Centre Tower One 800 North Quincy St. Arlington, VA 22217-5660 Attn: ONR 314 Ref: Contract N00014-93-C-0234

Table 2: Delivery of Updated Contracted Line Items

Line	Line Item Description	Line item Deliveries		
		Date	Qty	Destination Address
1AA	Updated CNAPS/PC board	6/2/95	7	Mr. Kevin Kittka PRC Incorporated 4301N. Fairfax Dr., Suite 700 Arlington, VA 22203-1627
		4/28/95	1	Mr. Morgan Grover Defense Group Inc. 429 Santa Monica Blvd., Suite 420 Santa Monica, CA 90401
		4/28/95	1	Mr. David Hess David Taylor Model Basin, Code 54 Carderock Division, NSWC Bethesda, MD 20084-5000
		4/28/95	1	Mr. Jeff DeHart Army Research Lab. 2800 Powder Mill Rd. Attn: AMSRL-SS-IC Adelphi, MD 20783-1197

Table 2: Delivery of Updated Contracted Line Items

Line	Line Item Description	Line item Deliveries		
		Date	Qty	Destination Address
1AE	Updated CNAPS software development environment for PC	12/30/96	7	Mr. Kevin Kittka PRC Incorporated 4301N. Fairfax Dr., Suite 700 Arlington, VA 22203-1627
		12/30/96	1	Mr. Morgan Grover Defense Group Inc. 429 Santa Monica Blvd., Suite 420 Santa Monica, CA 90401
		12/30/96	1	Mr. David Hess David Taylor Model Basin, Code 54 Carderock Division, NSWC Bethesda, MD 20084-5000
		12/30/96	1	Mr. Jeff DeHart Army Research Lab 2800 Powder Mill Rd. Attn: AMSRL-SS-IC Adelphi, MD 20783-1197

Appendix A

Copies of Adaptive's Shipping Notices

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT IDEN. (CONTRACT)		6. INVOICE	7. PAGE 1 OF 1
		N00014-93-C-0234			8. ACCEPTANCE POINT D
2. SHIPMENT NO. ASI0001	3. DATE SHIPPED 8/31/94	4. 3/L TCN	5. DISCOUNT TERMS Net		
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006			10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019		
11. SHIPPED FROM (if other than 9) See Block 9			12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381		
13. SHIPPED TO REF: Contract N00014-93-C-0234 Dr. Barbara Yoon ARPA/MTO 3701 n. Fairfax Dr. Arlington, VA 22203-1714			14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234		
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	17. DESCRIPTION	18. QUANTITY SHIP / REC'D	19. UNIT	20. AMOUNT
0001 AA	CNAPS/PC Board		10	EA	NSP
0001 AB	CNAPS-C User License		10	EA	NSP
0001 AC	CNAPS/PC and CNAPS-C Maintenance and Support for one (1) year		10	EA	NSP
21. PROCUREMENT QUALITY ASSURANCE			22. RECEIVER'S USE		
A. ORIGIN <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			B. DESTINATION <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.		
DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____			DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____		
23. CONTRACTOR USE ONLY			* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.		

Drive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY

PAGE 1 of 2

PACKING LIST

Ship to: **Dr. Barbara Yoon**
ARPA/MTO
3701 N. Fairfax
Arlington, VA 2203-1714

Attn:
Ref: **Contract N00014-93-C-0234**

Bill to: **5 sets - 6050 / 0210**
5 sets - 6051 / 0210

0387,0378,
0396

Request to Ship	Actual Ship Date
8/31/94	8/31/94
Sales Order #	P.O. Number
200680	N00014-93-C-0234
Order Date	Ship Via
	UPS Blue
Waybill Number	
179866910206300350, 0369	
F.O.B.	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
5 @ 110 lb	
Country of Origin	Exporter's E.I.N.
USA	93-0981962
Country of Ultimate Destination	
Export License No. / Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
	0001AA	CNAPS-PC Board	CNAPS®/PC64 - 4 MB of data storage	10	10	ea	NSP	NSP
		ASIO6404C2-20	SN: 400025, 400026, 400027, 400028 SN: 400029, 400030, 400031, 400032 SN: 400033, 400034					
			• CNAPS Diagnostics Version B1.0	10	10	ea		
			Software media, 3 1/4" diskettes					
		801-20071-01	• CNAPS/PC Board Reference Manual	10	10	ea		
			Version Beta1.0					
		801-20072-01	• CNAPS/PC Board Installation Guide	10	10	ea		
			Version Beta1.0					
		801-30046-01	• CNAPS/PC Board Release Notes Guide	10	10	ea		
			Version Beta1.0					
			• Microsoft Win32s	10	10	ea		
			Software media, 3 1/4" diskettes					
			• CNAPI-PC Version B1.0	10	10	ea		
			Software media, 3 1/4" diskettes					
		801-30044-01	• CNAPI-PC Release Notes Guide	10	10	ea		
			Version Beta1.0					
		801-20026-01	• CNAPI-PC Guide and Reference Manual	10	10	ea		
			Version Beta1.0					
	0001AB	CNAPS-C User License	CNAPS-C Version B21.A (3 diskettes per set)	10	10	sets	NSP	NSP
		801-20050-01	• CNAPS-C Programming Guide 2.0	10	10	ea		
		801-20056-01	• CNAPS-C Language Reference Guide 2.0	10	10	ea		
		801-30047-01	• CNAPS-C for NT Release Notes B2.1.A	10	10	ea		
		801-30040-05	• Learning CPL 3.0	10	10	ea		
		801-30041-06	• CPL Programming Guide 3.0	10	10	ea		
		801-30006-05	• CNAPS CodeNet Release Notes 3.1	10	10	ea		
			MAINTENANCE LISTED ON PAGE 2					

(CONTINUED ON PAGE 2)

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

PAGE 2 of 2

PACKING LIST

Ship to: **Dr. Barbara Yoon**
ARPA/MTO
3701 N. Fairfax, VA 22203-1714

Attn: **Dr. Barbara Yoon**
Ref: **Contract N00014-93-C-0234**

Bill to: **5 sets - 6050 / 0210**
5 sets - 6051 / 0210

Reqst to Ship	Actual Ship Date
8/31/94	8/31/94
Sales Order #	P.O. Number
200680	N00014-93-C-0234
Order Date	Ship Via
	UPS Blue
Waybill Number	
See Page 1	
F.O.B.	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
5 @ 110 lb	
Cntry of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
Export License No. / Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
	0001AC	CNAPS-PC & CNAPS-C Support	<p>One Year CNAPS-PC Warranty and Support for ASI06404C2-20 for the following serial numbers: SN: 400025, 400026, 400027, 400028 SN: 400029, 400030, 400031, 400032 SN: 400033, 400034</p> <p>• Coverage: CNAPS-PC boards are warranted to be free of defects in material or labor for one year. Adaptive Solutions will repair or replace a board at its factory in Beaverton, Oregon. Repair time is dependent on the availability of the failed materials. • Coverage September 1, 1994 - August 31, 1995.</p> <p>One Year CNAPS-C Software maintenance • Coverage: One year of software and manual updates, and unlimited "Hot Line" support. • Coverage September 1, 1994 - August 31, 1995,</p>	10	10	ea	NSP	NSP

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT IDENT. (CONTRACT)		2. ORDER NO.	3. INVOICE	7. PAGE 1 OF 1
		N00014-93-C-0234				8. ACCEPTANCE POINT D
2. SHIPMENT NO. AS10002	3. DATE SHIPPED 4/28/95	4. 3XL TCN	5. DISCOUNT TERMS Net			
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006			10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019		CODE S4801A	
11. SHIPPED FROM (if other than 9) See Block 9			12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381		CODE SC1006	
13. SHIPPED TO See attached list per instructions from: Dr. Barbara Yoon ARPA/MTO			14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234		CODE S4801A	
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
1AE		User license for PC based CNAPS software development environment	3	EA	NSP	
21. PROCUREMENT QUALITY ASSURANCE				22. RECEIVER'S USE		
A. ORIGIN <input type="checkbox"/> PCA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.		B. DESTINATION <input type="checkbox"/> PCA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.		Quantities shown in column 17 were received in apparent good condition except as noted.		
DATE _____ SIGNATURE OF AUTH GOVT REP _____		DATE _____ SIGNATURE OF AUTH GOVT REP _____		DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____		
TYPED NAME AND OFFICE _____		TYPED NAME AND TITLE _____		* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.		
23. CONTRACTOR USE ONLY						

Delivery List for Line Item 1AE

Delivered 4/28/95

Quantity

1

Addressee

Mr. Morgan Grover
Defense Group Inc.
429 Santa Monica Blvd., Suite 420
Santa Monica, CA 90401

1

Mr. David Hess
David Taylor Model Basin, Code 54
Carderock Division, NSWC
Bethesda, MD 20084-5000

1

Mr. Jeff DeHart
Army Research Lab.
2800 Powder Mill Rd.
Attn: AMSRL-SS-IC
Adelphi, MD 20783-1197

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY

Ship to: **Defense Group Inc.**
Suite 420
429 Santa Monica Blvd.
Santa Monica, CA 90401

Attn: **Morgan Grover**
310.394.8599

Ref.: **ARPA N00014-93-C-0234**

First Ship Date	Act. Ship Date
4/28/95	4-28-95
Sales Order No.	P.O. Number
201086	Upgrade
Order Date	Ship Via
N/A	UPS Pk
Waybill Number	
	2172
F.O.B.	Freight
Beaverton	Prepaid
# Pkgs/Wght	Freight Charges
1-12	18.25
Entry of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. / Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIDS128PC-20	CNAPS®/PC Development Environment /128 Includes: ASI12804C1-20 <i>IAA UPDATE</i> 128PN's, with 4 MB of data storage SN: 400113	1	1	ea	N/A	N/A
		ASI SDKW10-1 <i>IAE</i>	CNAPS Software Kit for Windows Version B1.1.0 Includes: • CNAPS-C 'C' compiler designed for CNAPS architecture • CNAPS Programming Language (CPL) A CNAPS assembler that allows the programmer complete access to all of the features of the hardware. • CNAPS CPL Source Code • CNAPS Debugger An integrated set of powerful tools for source level symbolic debugging for either CNAPS-C or CPL. • CNAPS QuickLib Foundation Library	1	1	ea	N/A	N/A
(Upgrade to SN: 400027; Returned to ASI on RMA 146 on 4.26.95)								

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY

Ship to: **David Taylor Model Basin, Code 54**
Carderock Division, NSWC
Bethesda, MD 20084-5000

Attn: **David Hess**
301.227.4704

Ref.: **ARPA N00014-93-C-0234**
REPLACEMENT BOARD FOR MODDED PC BOARD
UPGRADE

Reqst Ship Date	Act. Ship Date
4/28/95	4-28-95
Sales Order No.	P.O. Number
201087	Upgrade
Order Date	Ship Via
N/A	UPS 131M
Waybill Number	
FOB	Freight
Beaverton	Prepaid
# Pkgs/Wght	Freight Charges
	18.25
Country of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No./Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIDS128PC-20	CNAPS®/PC Development Environment /128	1	1	ea	N/A	N/A
		ASI12804C1-20	Includes:	1	1	ea	N/A	N/A
		IAA UPDATE	CNAPS®/PC128					
			128PN's, with 4 MB of data storage					
			SN: 400114					
		ASI SDKW10-1	CNAPS Software Kit for Windows	1	1	ea	N/A	N/A
		IAE	Version B1.1.0					
			Includes:					
			• CNAPS-C					
			'C' compiler designed for CNAPS architecture					
			• CNAPS Programming Language (CPL)					
			A CNAPS assembler that allows the programmer					
			complete access to all of the features of the hardware.					
			• CNAPS CPL Source Code					
			• CNAPS Debugger					
			An integrated set of powerful tools for source level symbolic					
			debugging for either CNAPS-C or CPL.					
			• CNAPS QuickLib Foundation Library					
			PLEASE RETURN SN: 400023 TO:					
			ON RMA #:					
			ADAPTIVE SOLUTIONS, INC					
			1400 NW COMPTON DRIVE					
			SUITE 340					
			BEAVERTON, OR 97005					
			ATTN: RMA # 152					
			(JOHN HAYNES)					

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY

Ship to: **Army Research Lab**
2800 Powder Mill Rd.
Attn: AMSRL-SS-IC
Adelphi, MD 20783-1197

Attn: **Jeff DeHart**
301.394.3920

Ref.: **ARPA N00014-93-C-0234**
End User: Dave Hillis

Reqst Ship Date	Act. Ship Date
4/28/95	4-28-5
Sales Order No.	P.O. Number
201085	Upgrade
Order Date	Ship Via
N/A	UPS BLUE
Waybill Number	
	2252
F.O.B.	Freight
Beaverton	Prepaid
# Pkgs/Wght	Freight Charges
1-12	
Country of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. /Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIDS128PC-20	CNAPS®/PC Development Environment /128	1	1	ea	N/A	N/A
		ASI12804C1-20	Includes:	1	1	ea	N/A	N/A
		IAA UPDATE	CNAPS®/PC128					
		ASI CSKW10-1	128PN's, with 4 MB of data storage	1	1	ea	N/A	N/A
		IAE	SN: 400106					
			CNAPS Software Kit for Windows					
			Version B1.1.0					
			Includes:					
			• CNAPS-C					
			'C' compiler designed for CNAPS architecture					
			• CNAPS Programming Language (CPL)					
			A CNAPS assembler that allows the programmer					
			complete access to all of the features of the hardware.					
			• CNAPS CPL Source Code					
			• CNAPS Debugger					
			An integrated set of powerful tools for source level symbolic					
			debugging for either CNAPS-C or CPL.					
			• CNAPS QuickLib Foundation Library					
			(Upgrade to SN: 400033; Returned to ASI on RMA 150 on 4.06.95)					

MATERIAL INSPECTION AND RECEIVING REPORT		1. INSTRUMENT GEN. CONTRACT		ORDER NO.	2. NVGICE	3. PAGE 1 OF 1
		N00014-93-C-0234				4. ACCEPTANCE POINT D
5. SHIPMENT NO.	6. DATE SHIPPED	7. JAL	8. DISCOUNT TERMS			
ASIC003	6/2/95	TCN	Net			
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006			10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019		CODE: S4801A	
11. SHIPPED FROM (if other than 9) See Block 9			12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381		CODE: SC1006	
13. SHIPPED TO See attached list per instructions from: Dr. Barbara Yoon ARPA/MTO			14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234		CODE: S4801A	
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION	17. QUANTITY <small>SHIP / RECD</small>	18. UNIT	19. UNIT PRICE	20. AMOUNT
1AE		User license for PC based CNAPS software development environment.	7	EA	NSP	
21. PROCUREMENT QUALITY ASSURANCE			22. RECEIVER'S USE			
A. ORIGIN <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.		B. DESTINATION <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.		Quantities shown in column 17 were received in apparent good condition except as noted.		
DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____		DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND TITLE _____		DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____		
23. CONTRACTOR USE ONLY			* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.			

Delivery List for Line Item
1AE

Delivered 6/2/95

Quantity

7

Addressee

Mr. Kevin Kittka
PRC Incorporated
4301N. Fairfax Dr., Suite 700
Arlington, VA 22203-1627

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY**PACKING LIST**

Ship to: **PRC Incorporated**
4301 N. Fairfax Drive
Suite 700
Arlington, VA 22203-1627
Reference Contract N00014-93-C-0234

Attn: **Mr. Kevin Kittka**
(703) 516-6013

Bill to: **4085 - COGS UPDATE**

Rqst to Ship	Actual Ship Date
5/31/95	6-2-95
Sales Order #	P.O. Number
201135	Update
Order Date	Ship Via
n/a	UPS Blue
Waybill Number	
1597, 2448, 2489, 2470	
F.O.B.	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
4-88 lbs	114.25
Cntry of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. /Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIDS128PC-20	CNAPS®/PC Development Environment /128					
		ASI12804C1-20	Includes: CNAPS®/PC128	7	7	ea	N/A	N/A
		IAA UPDATE	128PN's, with 4 MB of data storage SN: 400130 SN: 400129 SN: 400128 SN: 400127 SN: 400125 SN: 400124 SN: 400123					
		ASI SDKW10-1	CNAPS Software Kit for Windows	7	7	ea	N/A	N/A
		IAE	Version 1.1 Includes: • CNAPS-C 'C' compiler designed for CNAPS architecture • CNAPS Programming Language (CPL) A CNAPS assembler that allows the programmer complete access to all of the features of the hardware. • CNAPS CPL Source Code • CNAPS Debugger An integrated set of powerful tools for source level symbolic debugging for either CNAPS-C or CPL. • CNAPS QuickLib Foundation Library					

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT OEN (CONTRACT) N00014-93-C-0234		2. ORDER NO.	3. INVOICE	7. PAGE 1	8. OF 1
						3. ACCEPTANCE POINT D	
2. SHIPMENT NO. ASF0004		3. DATE SHIPPED 10/10/95		4. JAL TCN		5. DISCOUNT TERMS Net	
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006				10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019			
11. SHIPPED FROM (if other than 9) See Block 9				12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381			
13. SHIPPED TO See attached list per instructions from: Dr. Barbara Yoon ARPA/MTO				14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234			
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT	
1AD		User licenses for PC based BuildNet software development environment.	10	EA	NSP		
1AF		1 year support for each BuildNet license and each CNAPS development environment license.	10	EA	NSP		
21. PROCUREMENT QUALITY ASSURANCE						22. RECEIVER'S USE	
A. ORIGIN <input type="checkbox"/> POA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			B. DESTINATION <input type="checkbox"/> POA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			Quantities shown in column 17 were received in apparent good condition except as noted.	
DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____			DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____			DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____	
23. CONTRACTOR USE ONLY						* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.	

Delivery List for Line Items

1AD

1AF

Delivered 10/10/95

Quantity

1

Addressee

Mr. Morgan Grover
Defense Group Inc.
429 Santa Monica Blvd., Suite 420
Santa Monica, CA 90401

1

Mr. David Hess
David Taylor Model Basin, Code 54
Carderock Division, NSWC
Bethesda, MD 20084-5000

1

Mr. Jeff DeHart
Army Research Lab.
2800 Powder Mill Rd.
Attn: AMSRL-SS-IC
Adelphi, MD 20783-1197

7

Mr. Kevin Kittka
PRC Incorporated
4301N. Fairfax Dr., Suite 700
Arlington, VA 22203-1627

Adaptive Solutions, Inc.

1400 NW Compton Drive

Suite 340

Beaverton, Oregon 97006

Tel: 503.690.1236

Fax: 503.690.1249

COPY

PACKING LIST

Ship to: **The Defense Group**
Suite 420
429 Santa Monica Blvd.
Santa Monica, CA 90401

Attn: **Mr. Morgan Grover**
Ref: **(301) 394-8599**
Reference Contract N00014-93-C-0234

Bill to: **COGS**

Rqst to Ship	Actual Ship Date
10/11/95	10/10/95
Sales Order #	P.O. Number
201473	Henry
Order Date	Ship Via
n/a	UPS Blue



Beaverton	Freight
Prepaid	
#Pkg/Weight	Freight Charges
1/LTR	6-
Country of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No./Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIBPDL10-1 IAD IAF	ASI BP for Windows Version B1.5 Reference PC SN: 400113	1	1	ea	n/a	n/a

Adaptive Solutions, Inc.

1400 NW Compton Drive

Suite 340

Beaverton, Oregon 97006

Tel: 503.690.1236

Fax: 503.690.1249

COPY**PACKING LIST**

Ship to: **David Taylor Model Basin, Code 54**
Carderock Division, NSWC
Bethesda, MD 20084-5000

Attn: **David Hess**Ref: **(301) 227-4704****Reference Contract N00014-93-C-0234**Bill to: **COGS**

Request Ship	Actual Ship Date
10/11/95	10/10/95
Sales Order #	P.O. Number
201471	Henry
Order Date	Ship Via
n/a	UPS Blue



Beaverton	Freight
Prepaid	
#Pkg/Weight	Freight Charges
1/LTR	6-
Country of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. / Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIBPDL10-1 1AD 1AF	ASI BP for Windows Version B1.5 Reference PC SN: 400114	1	1	ea	n/a	n/a

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY

PACKING LIST

Ship to: **Army Research Lab**
2800 Powder Mill Road
Attn: AMSRL-SS-IC
Adelphi, MD 20738-1197
Reference Contract N00014-93-C-0234

Attn: **Mr. Jeff DeHart**
(301) 394-3920

Bill to: **COGS**

Request to Ship	Actual Ship Date
10/11/95	10/10/95
Sales Order #	P.O. Number
201472	Henry
Order Date	Ship Via
n/a	UPS Blue

 2ND DAY AIR SHIPPER RECEIPT
1Z 98E 691 02 0238 097 4
PLACE ON YOUR SHIPPING RECORD

FOB	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
1/LTR	6-
Country of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. / Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIBPDL10-1 <i>1 AD</i> <i>1 AF</i>	ASI BP for Windows Version B1.5 Reference PC SN: 400106	1	1	ea	n/a	n/a

Adaptive Solutions, Inc.

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

COPY**PACKING LIST**

Ship to: **PRC Incorporated**
4301 N. Fairfax Drive
Suite 700

Arlington, VA 22203-1627

Reference Contract N00014-93-C-0234

Attn: **Mr. Kevin Kittka**
(703) 516-6013

Bill to: **COGS**

Reqst to Ship	Actual Ship Date
10/11/95	10/10/95
Sales Order #	P.O. Number
201470	Henry
Order Date	Ship Via
n/a	UPS Blue

2ND DAY AIR SHIPPER RECEIPT
ups 1Z 98E 691 02 0238 099 2
PLACE ON YOUR SHIPPING RECORD

F.O.B.	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
1/5lbs	9.25
Cntry of Origin	Exporter's EIN
USA	93-0981962
Country of Ultimate Destination	
USA	
Export License No. /Expiration	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	ASIBPDL10-1 <i>IAD</i> <i>IAF</i>	ASI BP for Windows Version B1.5 Reference: SN: 4000130 SN: 400129 SN: 4000128 SN: 400127 SN: 4000125 SN: 400124 SN: 4000123	7	7	ea	N/A	N/A

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT IDENT. (CONTRACT)		ORDERING NO.	5. INVOICE	7. PAGE 1 OF 1	
		N00014-93-C-0234				8. ACCEPTANCE POINT D	
2. SHIPMENT NO. AS10005		3. DATE SHIPPED 12/30/96		4. 3A TCN		6. DISCOUNT TERMS Net	
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006				10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019			
11. SHIPPED FROM (if other than 9) See Block 9				12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381			
13. SHIPPED TO REF: Contract N00014-93-C-0234 Dr. Barbara Yoon ARPA/MT0 3701 n. Fairfax Dr. Arlington, VA 22203-1714				14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234			
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT	
5AA		Phase Lock Loop Schematics & Tape	1	EA	NSP		
5AB		Mini-Sequencer Schematic & Tape	1	EA	NSP		
5AC		Input/Output Schematics & Tape	1	EA	NSP		
5AD		Power Transistor Schematics & Tape	1	EA	NSP		
5AE		Logic Unit Schematics & Tape	1	EA	NSP		
5AF		SRAM Schematics & Tape	1	EA	NSP		
5AG		Next Generation CNAPS Assembler & Loader - Letter of Explanation	1	EA	NSP		
5AH		Port of CNAPS-C Compiler - Letter of Explanation	1	EA	NSP		
5AI		Design Document of Next Generation CNAPS-C Optimizations - Letter of Explanation	1	EA	NSP		
21. PROCUREMENT QUALITY ASSURANCE						22. RECEIVER'S USE	
A. ORIGIN <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			B. DESTINATION <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			Quantities shown in column 17 were received in apparent good condition except as noted.	
DATE _____ SIGNATURE OF AUTH GOVT REP _____			DATE _____ SIGNATURE OF AUTH GOVT REP _____			DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____	
TYPED NAME AND OFFICE _____			TYPED NAME AND TITLE _____			TYPED NAME AND OFFICE _____	
23. CONTRACTOR USE ONLY							

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

Ship to: **ARPA/MTO**
3701 N. Fairfax
Arlington, VA 22203-1714
Reference Contract: N00014-93-C-0234

Attn: **Dr. Barbara Yoon**

Ref:

Tel #:

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	5AA	Phase Lock Loop Design	1	1	ea	n/a	n/a
		5AC	Input/Output Design					
		5AD	Power Transistor Design					
		5AE	Logic Unit Design					
		5AF	PN SRAM Design					
1	2	5AB	Mini-Sequencer Design	1	1	ea	n/a	n/a
1	3	5AG	Letter of Explanation: CNAPS Assembler & Loader	1	1	ea	n/a	n/a
		5AH	Letter of Explanation: Port of CNAPS-C Compiler					
		5AI	Letter of Explanation: Design of CNAPS-C Optimizations					
1	4	Tape	Data Stream Tape in TAR Format (5AA, 5AC 5AD, 5AE, 5AF)	1	1	ea	n/a	n/a
1	5	Tape	Data Stream Tape in TAR Format (5AB)	1	1	ea	n/a	n/a
			TOTAL US DOLLARS:					

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT (OEN. (CONTRACT)) N00014-93-C-0234		6. ORDERING NO.	5. INVOICE	7. PAGE 1	OF 1
						3. ACCEPTANCE POINT D	
2. SHIPMENT NO. ASI0006		3. DATE SHIPPED 12/30/96		4. 3/L TCN		5. DISCOUNT TERMS Net	
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006				10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019			
11. SHIPPED FROM (if other than 9) See Block 9				12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381			
13. SHIPPED TO Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234				14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234			
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION		17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
0002	A003:	Final Technical Report		3	EA	NSP	
0002	A004:	C Function Source code		10	EA	NSP	
0002	A005:	C Function Documentation		10	EA	NSP	
0006	B003:	Final Technical Report		3	EA	NSP	
21. PROCUREMENT QUALITY ASSURANCE						22. RECEIVER'S USE	
A. ORIGIN <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			B. DESTINATION <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.			Quantities shown in column 17 were received in apparent good condition except as noted.	
DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____			DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND TITLE _____			DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____	
23. CONTRACTOR USE ONLY						* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.	

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

Ship to: **Office of Naval Research
Ballston Centre Tower One
800 N. Quincy Street
Arlington, VA 22217-5660
Reference Contract: N00014-93-C-0234**

Attn: **Dr. Clifford Law**

Ref: **ONR 314**

Reqst to Ship	Actual Ship Date
12/30/96	12/30/96
Sales Order #	P.O. Number
Order Date	Ship Via
12/30/96	UPS 3 day
Waybill Number	
F.O.B	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
Cntry of Origin	Exporter's EIN
USA	
Country of Ultimate Destination	
Export License No. /Expiration	
NLR	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	0002/A003	Final Technical Report	3	3	ea	n/a	n/a
		0006/B003	Final Technical Report					
1	2	0002/A004	C Functions Source Code	10	10	ea	n/a	n/a
1	3	0002/A005	C Function Documentation	10	10	ea	n/a	n/a
1	4	0002/A005	C Function Release Notes	10	10	ea	n/a	n/a
			TOTAL US DOLLARS:					

MATERIAL INSPECTION AND RECEIVING REPORT		1. PROC. INSTRUMENT DENL (CONTRACT)		2. ORDER NO.	3. INVOICE	7. PAGE 1 OF 1	
		N00014-93-C-0234				8. ACCEPTANCE POINT D	
2. SHIPMENT NO. AS10007		3. DATE SHIPPED 12/30/96		4. 3PL TCN		5. DISCOUNT TERMS Net	
9. PRIME CONTRACTOR Adaptive Solutions, Inc. 1400 NW Compton Drive Suite 340 Beaverton, OR 97006				10. ADMINISTERED BY DCMAO Seattle Corporate Campus East III 3009 112th Ave. NE, Suite 200 Bellevue, WA 98004-8019			
11. SHIPPED FROM (if other than 9) See Block 9				12. PAYMENT WILL BE MADE BY DFAS Columbus Center DFAS CO Santa Ana PO Box 182381 Columbus, OH 43218-2381			
13. SHIPPED TO See attached list per instructions from: Dr. Barbara Yoon ARPA/MTO				14. MARKED FOR Dr. Clifford Lau, Office of Naval Research Ballston Centre Tower One, 800 N. Quincy St. Arlington, VA 22217-5660 ATTN: ONR 314 REF: Contract N00014-93-C-0234			
15. ITEM NO.	16. STOCK/PART NO. <small>(Indicate number of shipping containers - type of container - container number.)</small>	DESCRIPTION		17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
1AE		CNAPS Software Development Environment for WIN/NT Update		10	EA	NSP	
21. PROCUREMENT QUALITY ASSURANCE						22. RECEIVER'S USE	
A. ORIGIN <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents. DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____			B. DESTINATION <input type="checkbox"/> PQA <input type="checkbox"/> ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents. DATE _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND TITLE _____			Quantities shown in column 17 were received in apparent good condition except as noted. DATE RECEIVED _____ SIGNATURE OF AUTH GOVT REP _____ TYPED NAME AND OFFICE _____	
23. CONTRACTOR USE ONLY						* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark, if different, enter actual quantity received below quantity shipped and encircle.	

Delivery List for Line Items

1AE Update

Delivered 12/30/96

Quantity

Addressee

1

Mr. Morgan Grover
Defense Group Inc.
429 Santa Monica Blvd., Suite 420
Santa Monica, CA 90401

1

Mr. David Hess
David Taylor Model Basin, Code 54
Carderock Division, NSWC
Bethesda, MD 20084-5000

1

Mr. Jeff DeHart
Army Research Lab.
2800 Powder Mill Rd.
Attn: AMSRL-SS-IC
Adelphi, MD 20783-1197

7

Mr. Kevin Kittka
PRC Incorporated
4301N. Fairfax Dr., Suite 700
Arlington, VA 22203-1627

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

Ship to: **Defense Group, Inc.**
429 Santa Monica Blvd., Suite 420
Santa Monica, CA 90401
Reference Contract: N00014-93-C-0234

Attn: **Mr. Morgan Grover**

Ref:

Reqst to Ship	Actual Ship Date
12/30/96	12/30/96
Sales Order #	P.O. Number
Order Date	Ship Via
12/30/96	UPS 3 day
Waybill Number	
F.O.B	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
Cntry of Origin	Exporter's EIN
USA	
Country of Ultimate Destination	
Export License No. /Expiration	
NLR	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	1AE	CNAPS Software Development Environment for Windows/NT Update (Version 3.0 Beta 1)	1	1	ea	n/a	n/a
	2	1AE	Release Notes	1	1	ea	n/a	n/a
			TOTAL US DOLLARS:					

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

Ship to: **Army Research Lab**
2800 Powder Mill Road
ATN: AMSRL-SS-IC
Adelphi, MD 20783-1197
Reference Contract: N00014-93-C-0234

Attn: **Mr. Jeff DeHart**

Ref:

Rqst to Ship	Actual Ship Date
12/30/96	12/30/96
Sales Order #	P.O. Number
Order Date	Ship Via
12/30/96	UPS 3 day
Waybill Number	
F.O.B	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
Cntry of Origin	Exporter's EIN
USA	
Country of Ultimate Destination	
Export License No. /Expiration	
NLR	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	1AE	CNAPS Software Development Environment for Windows/NT Update (Version 3.0 Beta 1)	1	1	ea	n/a	n/a
	2	1AE	Release Notes	1	1	ea	n/a	n/a
			TOTAL US DOLLARS:					

1400 NW Compton Drive
Suite 340
Beaverton, Oregon 97006
Tel: 503.690.1236
Fax: 503.690.1249

Ship to: **David Taylor Model Basin, Code 54**
Carderock Division, NSWC
Bethesda, MD 20084-5000
Reference Contract: N00014-93-C-0234

Ref:

Reqst to Ship	Actual Ship Date
12/30/96	12/30/96
Sales Order #	P.O. Number
Order Date	Ship Via
12/30/96	UPS 3 day
Waybill Number	
F.O.B	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
Cntry of Origin	Exporter's EIN
USA	
Country of Ultimate Destination	
Export License No. /Expiration	
NLR	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	1AE	CNAPS Software Development Environment for Windows/NT Update (Version 3.0 Beta 1)	1	1	ea	n/a	n/a
	2	1AE	Release Notes	1	1	ea	n/a	n/a
			TOTAL US DOLLARS:					

4

2

PACKING LIST

Ship to:

Tel #:

Rqst to Ship	Actual Ship Date
12/30/96	12/30/96
Sales Order #	P.O. Number
Order Date	Ship Via
12/30/96	UPS 3 day
Waybill Number	
F.O.B.	Freight
Beaverton	Prepaid
#Pkg/Weight	Freight Charges
Cntry of Origin	Exporter's EIN
USA	
Country of Ultimate Destination	
Export License No. /Expiration	
NLR	

Pkg. No.	Item No.	Product Code	Description	Order Qty.	Ship Qty.	Unit of Measure	Unit Price	Extended Price
1	1	1AE	CNAPS Software Development Environment for Windows/NT Update (Version 3.0 Beta 1)	7	7	ea	n/a	n/a
	2	1AE	Release Notes	7	7	ea	n/a	n/a
			TOTAL US DOLLARS:					